Amendments to the Claims

1. (Currently amended) A locknut with a deformable member, comprising:

(a) a threaded nut body with a central axis and a top end having a top surface;

(b) the threaded nut body having a plurality of internal threads defined along a first radius from the central axis, the plurality of threads defining a threaded body length dimension along the central axis having a top end, the plurality of threads further having a common thread diameter having a radius dimension, wherein the threaded body length dimension is about equal to the thread diameter;

~~(c) an aperture formed at the nut body top end about the central axis and having a first volume dimension, the aperture defined by a circular array of a plurality of forged splines and an actuating wall, wherein the splines each have a top end and a bottom end, the spline top ends aligned with the nut body top surface and along a top spline radius defined about the central axis, the spline bottom ends aligned along a bottom spline radius defined about the central axis, and the actuating wall is defined between an outer actuating wall end aligned along the bottom spline radius and an inner actuating wall end aligned with the top of the threaded body length, wherein the top spline radius and the bottom spline radius are greater than the first thread diameter;~~

~~(d) the forged spline elements each further having an engagement edge disposed between the spline top end and the spline bottom end and first and second sidewalls;~~

~~(e) a plurality of spline voids each defined between the first sidewall of one of the splines and the second sidewall of an adjacent spline; and~~

(c) an aperture forged at the nut body top end about the central axis and having a first volume dimension, the aperture defined by a plurality of forged splines disposed in a circular array about the central axis and an actuating wall;

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(d) each of the plurality of splines further having a first and second sidewall meeting to form an engagement edge, the engagement edges arrayed along an edge radius about the central axis and larger than the first thread diameter radius;

(e) a plurality of spline voids each defined between the first and second sidewalls of adjacent splines; and

(f) a deformable locking member having a second volume dimension larger than the aperture first volume and inserted within said aperture and having an outer surface engaged by the engagement edges, a top workpiece engagement surface, a cylindrical inner surface and a bottom actuating surface, wherein the outer surface is disposed on an outer surface radius ~~from~~ about the central axis~~,~~ and ~~the outer surface radius is~~ larger than ~~at least one of the spline top end radius and the spline bottom end radius~~ the edge radius;

wherein the deformable member is configured to deform and substantially flow into the spline voids and into the threads of a workpiece bolt when the member is tightened onto a workpiece bolt ~~having the locknut thread diameter~~ until the member top surface is compressively engaged by a workpiece surface and the member bottom actuating surface is compressively engaged by the aperture actuating wall, the member thereby exerting expansion locking forces against the workpiece bolt threads; and

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wherein the deformable member is configured to remain engaged by the spline ~~voids~~ sidewalls and edges and rotate with the locknut when the locknut is loosened about the workpiece bolt.

2. (Original) The locknut of claim 1 wherein the deformable member is formed from a material selected from the group consisting of polypropylene, polytetrafluoroethylene, and a copper metallic compound.

3. (Original) The locknut of claim 2 wherein the expansion locking forces exerted against the workpiece bolt threads by the deformable member may be increased or decreased by tightening or loosening the locknut about the workpiece bolt.

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4. (Original) The locknut of claim 1 wherein the member further deforms and flows into an interface region between the locknut top surface and a workpiece surface, the member thereby forming a vibration absorbing member between the locknut and the workpiece.

5. (Original) The locknut of claim 1 wherein the member further deforms and flows into an interface region between the locknut top surface and a workpiece surface, the member thereby forming a sealing member between the locknut and the workpiece.

6. (Original) The locknut of claim 1 wherein the deformable member cylindrical inner surface has an inner surface radius greater than the thread radius.

7. A method for locking a nut onto a bolt, comprising the steps of:

(a) providing a nut body with a central axis and top and bottom ends and having a top surface;

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~~(b) forging a circular array of a plurality of forged splines each having an engagement edge disposed between a spline top end and a spline bottom end and first and second sidewalls, the spline top ends aligned with the nut body top surface and along a top spline radius defined about the central axis, the spline bottom ends aligned along a bottom spline radius defined about the central axis;~~

~~(c) defining a plurality of spline voids, each defined between the first sidewall of one of the splines and the second sidewall of an adjacent spline;~~

~~(d) forging an actuating wall at the nut body top end, the actuating wall being defined between an outer actuating wall end aligned along the bottom spline radius and an inner actuating wall end;~~

~~(e) the circular array of a plurality of forged splines and the actuating wall defining an aperture about the central axis having a first volume dimension;~~

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(b) forging a plurality of splines on a circular array about the central axis and an actuating wall through a portion of the top surface on the nut body top end, each of the plurality of splines having a first and second sidewall meeting to form an engagement edge, the engagement edges arrayed along an edge radius about the central axis, the circular array of splines and the actuating wall defining an aperture about the central axis having a first volume dimension;

(c) the splines further defining a plurality of spline voids between the first and second sidewalls of adjacent splines;

(~~f~~d) internally threading the nut body with a plurality of internal threads from the ~~inner~~ actuating wall ~~end~~ to the nut body bottom end, the threads having a common thread diameter having a radius dimension defined from the central axis ~~, wherein a distance dimension~~ and smaller than the edge radius, the threads further defining a threaded body length dimension along the central axis from ~~the inner~~ actuating wall end to the nut body bottom end, the body length dimension ~~is~~ about equal to the ~~common~~ thread diameter~~, and wherein the top spline radius and the bottom spline radius are greater than the common thread diameter~~;

(~~g~~e) forming a resilient deformable locking member having a top workpiece engagement surface, a cylindrical inner surface having an inner radius, a deformable outer surface defined on an outer radius larger than the spline edge radius, and a bottom actuating surface, and further having a second volume dimension larger than the aperture first volume dimension;

(~~h~~f) inserting the resilient deformable locking member into the aperture and thereby the member outer surface into compressive contact with the spline engagement edges, the deformable member ~~having a top workpiece engagement surface, a cylindrical inner surface defined on a radius about the central axis, a deformable outer surface defined on a radius about the central axis larger than at least one of the spline top end radius and the spline bottom end radius, and a~~

~~bottom actuating surface, and further having a second volume dimension larger than the aperture first volume~~;

(~~i~~g) threading the nut body onto a bolt having ~~the~~ a corresponding ~~common~~ thread diameter;

(~~j~~h) rotating the nut body about the bolt and thereby causing the nut body to travel along the bolt until the deformable member top workpiece engagement surface engages a workpiece surface;

(~~k~~i) further rotating the nut body about the bolt, the deformable member thereby compressively engaging the spline engagement edges, the actuating wall, the workpiece surface and the bolt threads;

(~~l~~j) deforming and cold-flowing the deformable member inner surface into and about the bolt threads and the deformable outer surface about the spline walls and into the spline voids responsive to said compressive engagement; and

(~~m~~k) the cold-flowed deformable member exerting expansion forces against said ~~compressively engaging~~ spline engagement edges, actuating wall, workpiece surface bolt threads and spline walls, thereby providing frictional locking forces locking the nut body into a fixed position relative to the bolt;

A1 (cont) wherein the deformable member is configured to substantially flow into the spline voids sufficient to cause the cold-flowed member to remain engaged by the spline voids and rotate with the nut body when the nut body is loosened about the bolt.

8. (Original) The method of claim 7 wherein the step of forming the resilient deformable locking member further comprises the step of selecting a material from the group consisting of polypropylene, polytetrafluoroethylene, and a copper metallic compound.

9. (Original) The method of claim 8 further comprising the step of increasing the cold-flowed member expansion forces exerted against the bolt threads by further tightening the nut about th bolt.

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10. (Original) The method of claim 7 further comprising the step of decreasing the cold-flowed member expansion forces exerted against the bolt threads by loosening the nut about the bolt.

11. (Original) The method of claim 7 wherein the step of further deforming and cold-flowing the deformable member outer surface further comprises the step of flowing a portion of the deformable member into an interface region between the nut top surface and a workpiece surface, the member thereby forming a vibration absorbing member between the locknut and the workpiece.

12. (Original) The method of claim 7 wherein the step of further deforming and cold-flowing the deformable member outer surface further comprises the step of flowing a portion of the deformable member into an interface region between the nut top surface and a workpiece surface, the member thereby forming a sealing member between the locknut and the workpiece.

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13. (Original) The method of claim 7 wherein the deformable member cylindrical inner surface radius is greater than the thread radius.

14. (New) The locknut of claim 1 wherein the splines and spline voids are generally triangular in shape;

the spline sidewalls are generally planar;

the spline engagement edges generally linear;

the sidewalls defining the spline voids forming an angle with a value of from about 60 to about 120 degrees; and

the engagement edges are arrayed with a pitch value per inch of between about 10 to about 24.

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15. (New) The locknut of claim 14 wherein the linear spline engagement edges have an edge length of about one-sixteenth of an inch, and the threaded body length is about one-half inch.

16. (New) The locknut of claim 14 wherein the linear spline engagement edges have an edge length of about three-sixteenth of an inch;

the threaded body length is about two inches;

the spline void sidewall angle is about 90 degrees; and

the pitch value is about 14.

17. (New) The method of claim 7 wherein the splines and spline voids are generally triangular in shape;

the spline sidewalls are generally planar;

the spline engagement edges generally linear;

the sidewalls defining the spline voids forming an angle with a value of from about 60 to about 120 degrees; and

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the engagement edges are arrayed with a pitch value per inch of between about 10 to about 24.

18. (New) The method of claim 17 wherein the linear spline engagement edges have an edge length of about one-sixteenth of an inch, and the threaded body length is about one-half inch.

19. (New) The method of claim 17 wherein the linear spline engagement edges have an edge length of about three-sixteenth of an inch;

the threaded body length is about two inches;

the spline void sidewall angle is about 90 degrees; and

the pitch value is about 14.

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